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SPECIFICATIONS FOR USSR GUN LUBRICANT (GOST 3005-45)

Petroleum Industry B-24

50X1-HUM

1. This standard deals with consistent lubricant intended for the mechanisms of artillery pieces in summer, and for anticorrosive protection of metal surfaces of armament in the absence of other protection.

2. Composition of the lubricant is as follows:

	Percent by Wt
a. Cylinder oil "2" (GOST 1841-42)	35-25
b. Petrolatum with drop point (Ubbelode) not below 55°C	60-75
c. Ceresin (any grade complying with GOST 2488-44)	5-0
d. Sodium hydroxide, industrial (caustic soda), grade A or B (GOST 2263-43)	0.02

NOTES: 1. Cylinder oil "2" from Nebit Dag paraffin-base petroleum with congelation point up to 20° C may be used.

2. Preparation of gun lubricant without caustic soda is permissible.

3. The lubricant shall meet the following physicochemical requirements:

Appearance and properties: Grease-like substance; light to dark brown.

Lubricant smeared one millimeter thick on a glass plate and held over a light source must appear homogeneous and without clots larger than 3 mm; slight granularity is allowed. Presence of hard particles less transparent than lubricant proper indicates a nonhomogeneous product.

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Physicochemical Properties	Specifications	Methods of Testing
1. Drop point (Ubbelode), not below	50° C	OST NKTP 7872/2292, method 7zh-36 with provision of Note 3
2. Corrosion test on steel and copper plates, 100° C for 3 hr	Passes	In accordance with Paragraph 4 of this standard
3. Preservation test on steel plates, 50° C for 30 hr	Passes	In accordance with Paragraph 5 of this standard
4. Ability to hold on a metallic surface at 60° C for 24 hr a continuous film, not less than	0.6 mg/sq cm	OST NKTP 7872/2292, method 8g-37
5. Kinematic viscosity at 60° C, not less than	40 cst	GOST 33-40 (replaced by GOST 33-46)
6. Content of free organic acids, not over	0.3 mg KOH/g	OST NKTP 7872/2292, method 25k-37
7. Reaction	Neutral or slightly alkaline	OST NKTP 7872/2292, method 25i-37
8. Mechanical impurities, not over	0.07%	OST 7872-39, method 19v with Note 4
9. Water content	None	GOST 1548-42
10. Ash content not over	0.07%	OST NKTP 7872/2292, method 26v-36

NOTES: 1. Sand and other abrasive substances (Item 8, above table) not permitted.

2. When gun lubricant is placed in barrels, moisture content is determined as prescribed by GOST 1044-41.

3. The testing vessel of the Ubbelode apparatus must be filled with molten lubricant preheated to 100° C; the cup must be filled dropwise for quickest cooling of the lubricant; the operation is carried out on the bottom of a tilted porcelain bowl filled with crushed ice.

   The vessel, filled with the lubricant, is kept on the bottom of the bowl for 20 min, after which the test is carried out as prescribed by OST NKTP 7872/2292, method 7zh-36.

4. For mechanical-impurities testing, a 25-g sample of the lubricant is taken; determination is carried out by diluting it in 5 vol of gasoline, followed by subsequent flushing with hot benzene.

5 (added). For lubricants manufactured with petrolatum only (without ceresin), in some instances, with consent of the consumer, a continuous lubricant film on a metallic surface (Paragraph 3, Item 4) not less than 0.4 mg/sq cm is permitted. (Decision of VKS No 210, 29 March 1947)

4. Corrosion test of the lubricant is carried out on steel plates, grade 40 or 50 (GOST B-1050-41); and on copper plates, grade M2 (GOST 859-41).

Polished metal plates prepared for test as prescribed by OST NKTP 7872/2292, method 29b-37, are submerged in the lubricant heated up to 95° C, and kept in it for 3 hr at 100 ± 2° C in a thermostat.

Each test is carried out on two identical plates.

After the test is over, plates are taken out of the lubricant and put, one by one, into a porcelain bowl with warm alcohol-benzene mixture (one part of ethyl alcohol to four parts of pure benzene by volume) or with light gasoline free of sulfur. After gentle washing, the plates are rinsed several times with the alcohol-benzene mixture or with gasoline. Washed steel plates are immediately dried with dry absorbent cotton and thoroughly examined. Copper plates are first examined for green stains. After that, they are gently dried with dry, absorbent cotton and once more thoroughly examined.

Lubricant passes the test if by inspection with the naked eye the surface of copper plates is free of green, or new color of any hue, and the surface of steel plates is free from corroded pits.

Should traces of corrosion be visible on only one plate, the test must be repeated. In case of repeated detection of even one pit of corrosion, the lubricant fails the test.

5. The preservation test is carried out as prescribed by OST NKTP 7872/2292, method 29b-37 amended as follows:

Two polished steel plates, grade 40 or 50 (GOST B-1050-41), are submerged in the lubricant which has been poured into a glass or porcelain bowl so that the plates are covered with at least a 4-5 cm layer of lubricant.

The desiccator is filled with distilled water to a height of 10 mm from the bottom. A clean rectangular glass plate (or a perforated porcelain disk) is put on shank projections in the lower cylindrical part of the desiccator, allowing free communication between the lower and the upper part of the desiccator.

The bowl with the lubricant and the submerged plates is placed into the desiccator and made ready as described above (not more than two bowls to one desiccator). The desiccator is covered with a lid to whose inside surface a disk of filter cardboard is pasted. The disk must be cut in a way leaving the ground surfaces of the desiccator uncovered.

The desiccator is placed within a thermostat set at 50 ± 2° C and kept at that temperature for 30 hr.

At the close of the test, the plates are examined as prescribed by OST NKTP 7872/2292, method 29b-37, and the test findings are evaluated as follows:

The lubricant is considered passing the corrosion test if the surface of the plates shows no pits.

If traces of corrosion are visible on only one plate, the test must be repeated. In case of repeated detection of at least one pit, the lubricant fails the test.

6. Packing, marking, handling, storing, and inspecting the lubricant is as prescribed by GOST 1510-45 amended as follows:

Gun lubricant is delivered to GAU KA in wide-mouth tin containers.

On the side of each container must be stenciled a label identifying grade and time of lubricant manufacture. The label must be made with black enamel, indelible in water and mineral oil. Containers with lubricant are covered on their entire exterior surface with a mixture of rifle and gun lubricants (1:1) and packed for handling in wooden crates in accordance with existing designs and technical specifications of GAU KA.

In exceptional instances, with consent of GAU KA and the People's Commissariat for the Petroleum Industry, delivery of gun lubricant to GAU KA in wooden barrels of 100-liter capacity is permissible. The barrels must be provided with six iron hoops, have one coat of enamel on the inside and be painted on the outside.

7. Sampling of lubricant is carried out as prescribed by GOST 2517-44. A test sample consists of 1 kg of the lubricant.

Amendment 1

Paragraph 3, Item 6, column Methods of Testing:

OST NKTP 7872/2292, method 25k-37 is changed to OST NKTP 7872/2292, method 25g-36; lubricant is weighed in molten condition.

Proposed by the People's Commissariat for the Petroleum Industry USSR.

Approved by the All-Union Committee on Standards, 16 September 1945.

Effective 1 January 1946.

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